

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Guenter Weinberger *et al.* Confirmation No. 2140
Serial No.: 10/699,022 Art Unit: 2115
Filed: October 31, 2003 Examiner: Wang, Albert C.
For: **CONVERGENCE DEVICE WITH DYNAMIC PROGRAM
THROTTLING BASED ON POWER INDICATOR**

AMENDMENT

Mail Stop Patent Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the official Patent Office action dated July 14, 2006, wherein claims 1-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Naito *et al.*, U.S. Patent 6,735,455, in view of Gschwind, *et al.*, U.S. Patent 6,948,082, reconsideration of the rejection is hereby requested based on the following arguments. A Summary of claims with new claim 21 is enclosed.

Independent method Claim 1, device Claim 19 and article manufacture 20, each include the following limitations: (a) storing for at least a given one of a plurality of noncritical programs associated with the data communication functions an identifier of at least one alternate capacity program performing substantially the same function as the given program but having a different power source capacity associated therewith; and (b) based at least in part on a power indicator representative of a characteristic of the power source, replacing execution of the given program with execution of the alternate capacity program, such than an amount of power source capacity utilizable for the voice call communication functions is increased.

The Office action is correct in that Naito *et al.* does show a method for reducing power consumed in a battery-powered device including a cellular phone based on various preselected criteria based on the capacity of the battery.

As noted by the Office action, Naito *et al.* does not teach the limitation where at least an "alternate capacity program performing substantially the same function as the given

program but having a different power source capacity associated therewith” and replacing the alternative capacity program based on the power indicator. The Examiner also cites Gschwind *et al.* for “replacing an algorithm with one that consumes less power.”

The fallacy of this reasoning is that none of the references suggests such a substitution. “The proper test is whether the references, taken as a whole, would suggest the invention to one of ordinary skill in the art.” *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1581-82, 220 USPQ 97, 110 (Fed. Cir. 1983). In distinguishing the claimed invention from the prior art, the court may not simply take the individual elements of the patented design, item by item, and try to find whether they exist somewhere in the prior art. *In re Rouffett*, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998); *Sensonic, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996). Such piecemeal reconstruction of the prior art patents is contrary to the requirements of 35 U.S.C. § 103 because 35 U.S.C. § 103 does not permit application of hindsight judgment. The question of obviousness must be decided objectively as seen through eyes of a hypothetical experienced person in the art as of the date when the inventor applied for the patent.

Moreover, the modifications suggested by the secondary references in order to achieve the patented design may not destroy the fundamental characteristics of the primary reference. *Benchcraft Inc. v. Broyhill Furniture Industries Inc.*, 681 F.Supp. 1190, 7 USPQ2d 1257, 1276 (N.D.M.S. 1988). It is impermissible within the framework of 35 U.S.C. § 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary for the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *In re Wesslau*, 53 CCPA 746, 353 F.2d 238, 147 USPQ 391, 393 (CCPA 1965).

The Office action is equating “power source capacity” with “power dissipation.” Gschwind *et al.* is directed specifically to a “method and apparatus for software-assisted thermal management for electronic systems.” As described in the Field of the Invention “the present invention relates generally to power and powered-density management in microprocessors, and more particularly to a method and apparatus for a power and thermal management employing software and hardware components.” Col. 1, lines 11-14.

With respect to the Summary of the Invention at the bottom of Col. 2 and continuing over the Col. 3 includes “the invention relates to integration of software and hardware components in the response to thermal management events. A feature of the invention is the provision of a sensor for measuring power dissipation linked with both a hardware-based

thermal management solution and with a means for causing a notification event to software.” As indicated in Col. 4, lines 25-35, “According to the present invention, thermal control is performed with software assistance. In particular, hardware is adapted to generate notification events for software to request a reduction in power-intensity by software, or to notify software when less power-efficient algorithms can be employed again. Preferably, the invention is practiced in conjunction with a hardware-based thermal control circuit that will activate when software-based approaches are insufficient to reduce power dissipation to acceptable levels, or, in the case of software malfunction, to prevent catastrophic system failure.”

The problem being addressed in the present claimed invention, as well as in Naito et al., is performing operations based on the capacity of the battery not the power consumed and the thermal effect of the operating elements within the phone. Thus, it would not be obvious to use the thermal control of Gschwind *et al.* in the battery level control device of Naito et al.. To make such a combination would be searching for bits and pieces in the prior art to reconstruct the claimed invention. Thus, the combination of Naito et al. and Gschwind *et al.* is not obvious to one of ordinary skill in the art.

It is submitted that the above-noted conclusions in the office action appear to result from improper hindsight knowledge of applicant’s disclosure rather than a proper obviousness conclusion based on information taught or suggested by the prior art. *See Para-Ordnance Mfg. v. SGS Importers Int’l*, 73 F.3d 1085, 1087, 37 USPQ 2d 1237, 1239 (Fed. Cir. 1995) (citing *W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551, 1553, 220 USPQ 303, 311, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) (Obviousness may not be established using hindsight.)); *Benchcraft Inc. v. Broyhill Furniture Industries Inc.*, 681 F.Supp. 1190, 7 USPQ2d 1257, 1266 (N.D.M.S. 1988) (The court should not and may not utilize hindsight to hold that because a design is obvious now, it must have been obvious at the time of invention.); *Application of Oelrich*, 579 F.2d 86, 198 USPQ 210 (CCPA 1978). Thus, Claims 23-31 are allowable over the art of record.

With respect to new independent claim 21, it includes the additional limitation:

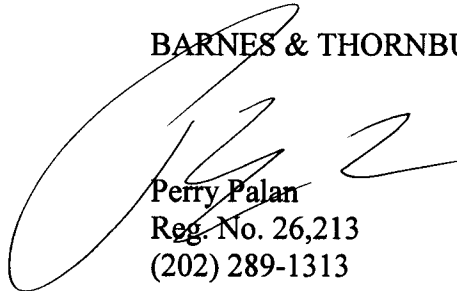
based at least in part on a power indicator representative of a characteristic of the power source, setting at least a subset of the plurality of noncritical programs in one of an executing state, a pending state and a sleeping state and replacing execution of the given program with execution of the alternate capacity program which is in an executing state

This is the limitation similar to those of claims 13-15, which were rejected in view of Gschwind col. 5, lines 33-66 and Naito *et al.* col. 7, lines 45-63. Although Gschwind does discuss “suspension” of a program, which may be deactivate or sleep, it does not offer a third state from executing and suspension. Naito *et al.* describes limiting all functions when the battery capacity gets too low to allow emergency use of the device. As with Gschwind, this does not describe three states for selected programs. Thus the limitations of claim 21 and dependant claims 13-15 are allowable over the art.

Thus Claims 1, 19, 20 and 21 and their dependent claims are considered allowable over the art of record and thus the passage of this case to issue is respectfully solicited.

Respectfully submitted,

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CLAIMS SUMMARY

1. (Original) A method for conserving power by controlling program execution in a convergence device comprising a power source and at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data communication functions, the processor being operative to execute critical programs and noncritical programs, the method comprising the steps of:

storing for at least a given one of a plurality of noncritical programs associated with the data communication functions an identifier of at least one alternate capacity program performing substantially the same function as the given program but having a different power source capacity associated therewith; and

based at least in part on a power indicator representative of a characteristic of the power source, replacing execution of the given program with execution of the alternate capacity program, such that an amount of power source capacity utilizable for the voice call communication functions is increased.

2. (Original) The method of Claim 1 wherein the power source comprises a battery.

3. (Original) The method of claim 2 wherein the power indicator is representative of a remaining capacity of the battery.

4. (Original) The method of claim 1 wherein if the power indicator is below a first threshold, execution of the given noncritical program is replaced with execution of an alternate capacity noncritical program having associated therewith a lower power source capacity than the given program.

5. (Original) The method of claim 1 wherein if the power indicator is not below a first threshold, execution of the given noncritical program is replaced with execution of an alternate capacity program having associated therewith a higher power source capacity than the given program.

6. (Original) The method of claim 1 wherein the voice call communication functions comprise one or more functions associated with cellular voice call communications.

7. (Original) The method of claim 1 wherein the data communication functions comprise one or more functions associated with multimedia processing at one or more of a specified data rate, a specified refresh rate and a specified display resolution.

8. (Original) The method of claim 7 wherein the given program performs multimedia processing at a specified data rate and the alternate capacity program performing substantially the same function as the given program performs multimedia processing at a different data rate than the given program.

9. (Original) The method of claim 7 wherein the given program performs multimedia processing at a specified refresh rate and the alternate capacity program performing substantially the same function as the given program performs multimedia processing at a different refresh rate than the given program.

10. (Original) The method of claim 7 wherein the given program performs multimedia processing at a specified display resolution and the alternate capacity program performing substantially the same function as the given program performs multimedia processing at a different display resolution than the given program.

11. (Original) The method of claim 1 wherein the critical programs comprise programs utilized to implement at least one of an operating system running on the processor, a graphical user interface of the convergence device, and one or more of the voice call communication functions.

12. (Original) The method of claim 1 wherein the plurality of noncritical programs are categorized based on power source capacity into at least two categories including a category at a first capacity and a category at a second capacity, the first capacity being a lower capacity than the second capacity.

13. (Original) The method of claim 1 wherein each of at least a subset of the plurality of noncritical programs may be in one of a number of states, including at least an executing state, a pending state and a sleeping state.

14. (Original) The method of claim 4 wherein if the power indicator is below a second threshold that is lower than the first threshold, the given noncritical program and the alternate noncritical program are set to a sleeping status.

15. (Original) The method of claim 14 wherein if the power indicator is not below the second threshold, any noncritical program having a sleeping status is set to a pending status.

16. (Original) The method of claim 14 wherein the second threshold is representative of a minimum acceptable capacity for continuation of one or more of the voice call communication functions.

17. (Original) The method of claim 1 wherein the processor is operative to store a list of the noncritical programs with associated capacities for one or more of the noncritical programs.

18. (Original) The method of claim 1 wherein the processor comprises a multithreaded processor.

19. (Original) A convergence device comprising:
a power source; and
at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data communication functions, the processor being operative to execute critical programs and noncritical programs;
the convergence device storing for at least a given one of a plurality of noncritical programs associated with the data communication functions an identifier of at least one alternate capacity program performing substantially the same function as the given program but having a different power source capacity associated therewith;
wherein based at least in part on a power indicator representative of a characteristic of the power source, execution of the given program is replaced with execution of the alternate capacity program, such that an amount of power source capacity utilizable for the voice call communication functions is increased.

20. (Original) An article of manufacture comprising a machine-readable storage medium having embodied thereon program code for use in conserving power by controlling program execution in a convergence device comprising a power source and at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data communication functions, the processor being operative to execute critical programs and noncritical programs, wherein the program code when executed by the processor implements the steps of:

storing for at least a given one of a plurality of noncritical programs associated with the data communication functions an identifier of at least one alternate capacity program performing substantially the same function as the given program but having a different power source capacity associated therewith; and

based at least in part on a power indicator representative of a characteristic of the power source, replacing execution of the given program with execution of the alternate capacity program, such that an amount of power source capacity utilizable for the voice call communication functions is increased.

21. (New) A method for conserving power by controlling program execution in a convergence device comprising a power source and at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data communication functions, the processor being operative to execute critical programs and noncritical programs, the method comprising the steps of:

storing for at least a given one of a plurality of noncritical programs associated with the data communication functions an identifier of at least one alternate capacity program performing substantially the same function as the given program but having a different power source capacity associated therewith; and

based at least in part on a power indicator representative of a characteristic of the power source, setting at least a subset of the plurality of noncritical programs in one of an executing state, a pending state and a sleeping state and replacing execution of the given program with execution of the alternate capacity program which is in an executing state, such that an amount of power source capacity utilizable for the voice call communication functions is increased.